

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESMED, INC.,
Petitioner,

v.

NEW YORK UNIVERSITY,
Patent Owner.

IPR2022-00989
Patent 9,427,539 B2

Before BART A. GERSTENBLITH, JAMES A. TARTAL, and
ARTHUR M. PESLAK, *Administrative Patent Judges*.

TARTAL, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

ResMed, Inc. (“Petitioner”) filed a Petition pursuant to 35 U.S.C. §§ 311–319 requesting an *inter partes* review of claims 1, 2, 5–11, 13, and 15–30 (“the Challenged Claims”) of U.S. Patent No. 9,427,539 B2 (“the ’539 patent,” Ex. 1001). Paper 1. Subsequently, Petitioner filed a Motion to correct the Petition, which New York University (“Patent Owner”) opposed. Papers 7, 8. We granted Petitioner’s Motion. Paper 10. Petitioner then filed a Corrected Petition. Paper 11 (“Pet.”).¹ Patent Owner filed a Preliminary Response. Paper 12 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply to the Preliminary Response. Paper 14 (“Pet. Reply”). Patent Owner filed a Sur-reply. Paper 15 (“Sur-reply”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b) (2018); 37 C.F.R. § 42.4(a) (2021). An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a).

Upon consideration of the Petition, the Preliminary Response, Petitioner’s Reply, Patent Owner’s Sur-reply, and the evidence of record, we conclude that the information presented shows a reasonable likelihood that Petitioner would prevail in showing the unpatentability of at least one of the Challenged Claims. Accordingly, we authorize an *inter partes* review to be instituted as to the Challenged Claims of the ’539 patent on the grounds

¹ Further references herein to “Petition” will refer to the Corrected Petition.

raised in the Petition. Our factual findings and conclusions at this stage of the proceeding are based on the evidentiary record developed thus far (prior to Patent Owner's Response). This is not a final decision as to patentability of claims for which *inter partes* review is instituted. Any final decision will be based on the record, as fully developed during trial.

II. BACKGROUND

A. The '539 Patent

The '539 patent is titled "System and Method for Diagnosis and Treatment of a Breathing Pattern of a Patient." Ex. 1001, code (54). The '539 patent issued on August 30, 2016, from Application No. 15/015,944, which was filed on February 4, 2016. *Id.* at codes (45), (21), (22). Application No. 15/015,944 is a continuation of Application No. 14/633,535, filed on February 27, 2015; which is a continuation of Application No. 14/583,005, filed on December 24, 2014; which is a continuation of Application No. 12/983,628, filed on January 3, 2011; which is a continuation of Application No. 11/240,197, filed September 30, 2005, which is a continuation-in-part of Application No. 11/210,568, filed August 24, 2005; which is a continuation of Application No. 10/642,459, filed August 14, 2003.² *Id.* at code (63).

As background, the '539 patent explains that "[o]bstructive sleep apnea syndrome (OSAS) is a well recognized disorder which may affect as

² Petitioner acknowledges this priority claim and states that "[t]he challenged claims are entitled to an effective filing date of no earlier than August 14, 2003." Pet. 12. Petitioner states that they do not concede this priority date and "[f]or the purpose of this Petition, it is unnecessary to break the priority chain to a later date." *Id.* at 12 n.4.

much as 1–5% of the adult population.” *Id.* at 1:29–32. According to the ’539 patent:

OSAS is associated with many conditions in which there is an anatomic or functional narrowing of the patient’s upper airway, and is characterized by an intermittent obstruction of the upper airway occurring during sleep. The obstruction results in a spectrum of respiratory disturbances ranging from the total absence of airflow (apnea) to significant obstruction with or without reduced airflow (hypopnea and snoring), despite continued respiratory efforts.

Id. at 1:35–42. The ’539 patent further explains that positive airway pressure (PAP) therapy “has evolved as the most effective treatment for OSAS.” *Id.* at 1:58–61. The ’539 patent describes that “PAP therapy is directed to maintaining pressure in the collapsible portion of the airway at or above the critical tissue pressure at all times” and is applied via a tight fitting nasal mask worn during sleep. *Id.* at 1:58–61, 2:11–13.

The ’539 patent states that “[i]ncreasing the comfort of the PAP system has been a major goal of research aimed at improving patient compliance with the PAP therapy.” *Id.* at 1:65–67. Specifically, “conventional PAP therapy has not taken sleep/wake state into account, and conventional PAP systems apply pressure unnecessarily when the patient is awake.” *Id.* at 2:18–21. The ’539 patent also states that “patients often report discomfort due to high pressure while being awake.” *Id.* at 2:32–33.

Figure 1 of the ’539 patent is reproduced below.

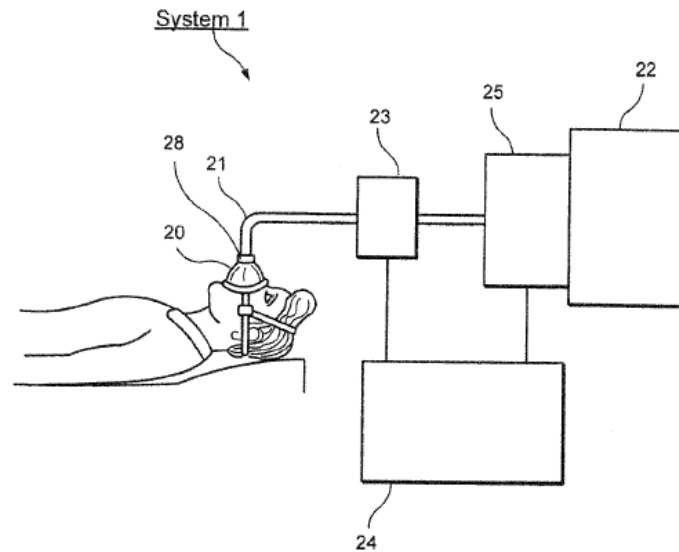


FIG. 1

Figure 1 “shows an exemplary embodiment of a system according to” the ’539 patent. Ex. 1001, 3:22–23. System 1, shown in Figure 1, includes mask 20 connected via tube 21 for receiving an airflow of a particular pressure from flow generator 22. *Id.* at 3:52–56. The ’539 patent describes conventional flow sensors 23 that are coupled to tube 21 and detect the rate of airflow to/from the patient and/or a pressure supplied to the patient via generator 22. *Id.* at 3:61–64. The ’539 patent states that “[s]ignals corresponding to the airflow and/or the pressure are provided to a processing arrangement 24 for processing” and “[t]he processing arrangement 24 outputs a signal to a conventional flow control device 25 to control a pressure applied to the flow tube 21 by the flow generator 22.” *Id.* at 3:65–4:2.

The ’539 patent also describes a method that uses system 1. *Id.* at 3:24–26. “[S]ystem 1 initiates a real-time monitoring procedure of the

patient's breathing patterns.” *Id.* at 4:14–15, 4:18–19. The '539 patent explains that “[t]he monitoring procedure is performed by the processing arrangement 24 which may utilize pre-stored patient data along with current data provided by the sensors 23 regarding the airflow to and from the patient and/or the applied pressure.” *Id.* at 4:19–23. The '539 patent states that “[d]uring the monitoring procedure, the processing arrangement 24 makes a determination as to a current state of the patient (e.g., whether the patient is asleep, awake and breathing regularly or awake and breathing irregularly due to distress or anxiousness).” *Id.* at 4:24–28. According to the '539 patent, this “determination can be made based on a number of different measurements,” such as “the patient's heart rate, blood pressure, EEG data, breathing patterns, etc.” *Id.* at 4:28–32. The '539 patent further describes breathing patterns that indicate quiet, regular, and relaxed breathing during PAP therapy; sleep-disordered breathing; and when the patient is awake and anxious or distressed. *Id.* at 4:35–37, 4:44–59.

The '539 patent describes processing arrangement 24 as determining whether there has been a change in the patient's state and adjusting pressure to correspond to the patient's current state. *Id.* at 5:60–62. The '539 patent further describes an embodiment in which “system 1 may include a neural network coupled to the processing arrangement 24 and the sensors 23 for identifying the state of the patient.” *Id.* at 7:49–52.

B. Illustrative Claim

Petitioner challenges claims 1, 2, 5–11, 13, and 15–30 of the '539 patent. Pet. 1. Claims 1, 11, and 24 are independent. Ex. 1001, 9:34–

12:34. Claim 24 is illustrative of the claimed subject matter and is reproduced below.

24. A positive airway pressure system for treatment of a sleeping disorder in a patient, comprising:
- a generator supplying airflow and applying a pressure to an airway of a patient;
 - a sensor measuring data corresponding to patient's breathing patterns from data indicate of the airflow supplied to the patient using at least one of a flow sensor or pressure sensor; and
 - a hardware processor analyzing the breathing patterns to determine whether breathing patterns indicate an asleep state or an awake state have occurred.

Ex. 1001, 11:36–12:7.

C. Petitioner's Asserted Grounds for Unpatentability

Petitioner asserts that the Challenged Claims are unpatentable based on the following grounds:

Claims Challenged	35 U.S.C. § ³	Reference(s)/Basis
1, 2, 5–11, 13, 15–30	103(a)	Sullivan995, ⁴ Sullivan460 ⁵
1, 2, 5–11, 13, 15–30	103(a)	Rapoport502, ⁶ Sullivan460
1, 2, 5–11, 13, 15–30	102(b)	Sullivan995

³ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. §§ 102 and 103 that became effective on March 16, 2013. The ’539 patent asserts priority to several patent applications filed before March 16, 2013. Ex. 1001, codes (22), (63). In this Decision, we assume the asserted priority (which has not been challenged) is correct and apply the pre-AIA version of §§ 102 and 103 here. This Decision, however, would not change regardless of which version of the statute applies.

⁴ U.S. Patent No. 5,245,995, issued Sept. 21, 1993 (Ex. 1005, “Sullivan995”).

⁵ WO 01/05460 A1, published Jan. 25, 2001 (Ex. 1006, “Sullivan460”).

⁶ U.S. Patent No. 5,490,502, issued Feb. 13, 1996 (Ex. 1008, “Rapoport502”).

Claims Challenged	35 U.S.C. § ³	Reference(s)/Basis
1, 2, 5–11, 13, 15–30	102(b)	Rapoport502

See Pet. 4. Petitioner relies on the supporting Declaration of Dr. Khosrow Behbehani, dated May 31, 2022. Ex. 1003.

D. Real Parties in Interest

Petitioner and Patent Owner each identifies itself and no others as a real party in interest. Pet. 1; Paper 4, 2.

E. Related Proceedings

The parties identify the '539 patent as a subject of *New York University v. ResMed, Inc.*, No. 1:21-cv-00813-JPM (D. Del. 2021). Pet. 1; Paper 4, 2. Petitioner also states that it filed petitions challenging claims of the following related patents: U.S. Patent No. 9,108,009 B2 (IPR2022-00988), U.S. Patent No. 9,533,115 B2 (IPR2022-00990), U.S. Patent No. 9,867,955 (IPR2022-00991), U.S. Patent No. 10,384,024 B2 (IPR2022-00992), U.S. Patent No. 6,988,994 B2 (IPR2022-00993), and U.S. Patent No. 9,168,344 B2 (IPR2022-00994). Pet. 2.

III. ANALYSIS

A. 35 U.S.C. § 315(b) Time Bar

Patent Owner argues that the Petition is “time-barred under 35 U.S.C. § 315(b)” because it “fails to provide specific claim construction arguments for any of the claim terms.” Prelim. Resp. 11. According to Patent Owner, the “Petition is fatally flawed because Petitioner first merely argues that ‘the prior art meets each of the claim limitations under any reasonable construction,’ instead of providing specific claim constructions for any of the claim terms.” *Id.* at 13 (citing Pet. 20). Patent Owner also argues that, “in certain circumstances” Petitioner applies an “implied construction

of ‘an awake state’ based on [Patent Owner’s] infringement allegations,” but “provides no evidence to support its ‘implied construction.’” *Id.* at 14. Patent Owner further argues it “would be clearly prejudiced if the . . . Petition was not time-barred” and it “should not be penalized for the Petitioner’s calculated indecision and failure to endorse a single claim construction.” *Id.*

Petitioner argues in its Reply that there is no requirement to propose express construction of claim terms and points to the Patent Trial and Appeal Board Consolidated Trial Practice Guide (“CTPG”) (November 2019),⁷ which provides that “a petitioner may include a statement that the claim terms require no express construction.” Pet. Reply 3 (quoting CTPG 44). Petitioner argues that its statement that “[t]his Petition establishes the prior art meets each of the claim limitations under any reasonable construction” (Pet. 20) is equivalent to stating that no claim term requires express construction. Pet. Reply 3. Petitioner further argues that only claim terms “in controversy” need to be construed “only to the extent necessary to resolve the controversy,” and that Patent Owner admits “no claim terms are in controversy” (Prelim. Resp. 10). Pet. Reply 1–2 (citing *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017)).

In its Sur-reply, Patent Owner argues the CTPG “states that a petition must either ‘provide a claim construction for the challenged claims’ or rely on plain and ordinary meaning by stating that the ‘claim terms require no express construction,’” and that “Petitioner cannot meet either requirement.”

⁷ Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

Sur-reply 3 (citing CTPG 42). Further, Patent Owner argues it “is not required to submit claim constructions in order for the Board to deny institution” and asserts its “Preliminary Response is wholly irrelevant to whether Petitioner met its required obligations in properly identifying a challenge in its Petition under Rule 42.104(b).” *Id.* at 4.

Patent Owner’s contention that the Petition is time-barred under § 315(b) is unavailing. Rule 42.104(b) requires a petitioner to state in its petition “[h]ow the challenged claim is to be construed” and “specify where each element of the claim is found in the prior art.” 37 C.F.R. §§ 42.104(b)(3), (b)(4). The Petition states “[t]he Board construes the claims ‘using the same claim construction standard that would be used’ in district courts.” Pet. 20. We disagree that Rule 42.104(b) or the CTPG requires Petitioner to make any specific statement if it takes the position that no express construction of claim terms is required. Rather, the CTPG states that “a petitioner may include a statement that the claim terms require no express construction.” CTPG 44.

Petitioner maps the asserted art against the claims using what appears, based on our review of the Petition and the Preliminary Response, to be the plain and ordinary meaning of the claim limitations as written. In support of the contentions in the Petition, Dr. Behbehani states that he has “applied the plain meaning of the terms and phrases in the claims in [his] analysis.”

Ex. 1003 ¶ 80. As the Federal Circuit notes, “[i]n some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Phillips v. AWG Corp.*, 415 F.3d 1303, 1314

(Fed. Cir. 2005) (en banc) (citing *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir. 2001)). Under these circumstances, it would require us to exalt form over substance to accept Patent Owner’s contention that Petitioner’s failure to use explicitly an optional phrase from the CTPG, not required by our rules, mandates denial of institution. Nor do we find any support for Patent Owner’s argument that, because Petitioner also argues, as an alternative, that claims are unpatentable based on how Petitioner contends Patent Owner construed certain limitations in the district court, the Petition should be denied as time-barred because Petitioner “never explicitly endorses” the alternative construction. *See* Prelim. Resp. 14.

Patent Owner relies on two non-precedential Board decisions: *Volkswagen Group of America, Inc. v. Michigan Motor Technologies, LLC*, IPR2020-00229, Paper 13 (PTAB July 6, 2020), and *EiKO Global, LLC v. Blackbird Tech LLC*, IPR2017-00980, Paper 16 (PTAB Sept. 1, 2017). Prelim. Resp. 12–13. In *Volkswagen*, however, the petitioner argued for the plain and ordinary meaning of “temporal characteristics,” which the patent owner explained was expressly defined in the patent at issue. *Volkswagen*, Paper 13 at 10. The petition provided “no explanation for disregarding and failing to address the express definition of an important claim term.” *Id.* Here, Patent Owner does not direct us to any express definitions from the Specification of the ’539 patent not addressed by Petitioner. In *EiKO Global*, the petitioner failed to properly address certain claim constructions from a parallel district court proceeding. *EiKO Global*, Paper 16 at 35–36. In particular, the petitioner made “the proper construction and application of the claim term ‘housing’ a moving target” by first endorsing a construction of the term and then “not apply[ing] this construction in arguing how the

asserted prior art renders claim 12 unpatentable.” *Id.* at 36. Here, although Petitioner proposes unpatentability grounds under alternative constructions, Petitioner has not taken any inconsistent positions concerning the construction of any claim term. Although Patent Owner is not required to offer any claim constructions or even to file a Preliminary Response, it did file a Preliminary Response and did not point to any specific claim construction issue in Petitioner’s mapping of the prior art to the claims. For these reasons, and because, based on the current record, the claim language can be readily understood, we determine the Petition complies with Rule 42.104(b). Consequently, Patent Owner’s contention that the Petition is time-barred under 35 U.S.C. § 315(b) is unavailing.

B. Discretionary Denial of Institution Under 35 U.S.C. § 325(d)

Patent Owner argues we should exercise our discretion under 35 U.S.C. § 325(d) and deny institution because Petitioner relies on prior art that was previously presented to the Office. Prelim. Resp. 15–20. In the Petition, Petitioner contends that “[i]nstitution is appropriate under § 325(d) because substantially the same art and arguments have never been presented to or considered by the Office,” and that “none of the asserted references was considered during prosecution.” Pet. 72 (citing *Advanced Bionics, LLC v. Med-el Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 6–11 (PTAB Feb. 13, 2020) (precedential)).

A petition may be denied “because, the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). The CTPG indicates that the decision whether to deny institution on this basis “is a fact-dependent decision, in which the Board balances the

petitioner's desire to be heard against the interest of the patent owner in avoiding duplicative challenges to its patent." CTPG 62.

We use a two-part framework to analyze a request to exercise discretion to deny institution under § 325(d). First, we determine "whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office." *Advanced Bionics*, Paper 6 at 8. Second, if either condition of the first part of the framework is satisfied, then we consider "whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of [the] challenged claims." *Id.* In applying this framework, we refer to the non-exclusive factors delineated in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph). These factors are: a) the similarities and material differences between the asserted art and the prior art involved during examination; b) the cumulative nature of asserted art and the prior art evaluated during examination; c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; d) the extent of overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments. *Id.* at 17–18.

These factors "should be read broadly . . . to apply to any situation in which a petition relies on the same or substantially the same art or arguments

previously presented to the Office during a proceeding pertaining to the challenged patent.” *Advanced Bionics*, Paper 6 at 10. If, after review of factors (a), (b), and (d), we determine the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner demonstrates that the Office erred in a manner material to patentability of the challenged claims. *Id.*

Patent Owner bases its argument on the fact that the applicant disclosed Sullivan995 and Rapoport502 on an Information Disclosure Statement (“IDS”) submitted during the prosecution of U.S. Patent No. 6,988,994 B2 (“the ’994 patent”) from which the ’539 patent claims priority. Prelim. Resp. 16–17; *see also id.* at 6 (detailing the prosecution history of the ’994 patent) (citing Ex. 2002, 74–75). Patent Owner further argues Sullivan995 and Rapoport502 “fall squarely within the definition of previously presented prior art, which ‘includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (IDS), in the prosecution history of the challenged patent.’” *Id.* at 17 (quoting *Advanced Bionics*, Paper 6 at 7–8). Patent Owner argues that “Sullivan460 must also be considered previously presented prior art because it shares the same disclosure as Sullivan995 and, in addition, expressly states that it ‘incorporates Sullivan995 by reference.’” *Id.* (citing Ex. 1006, 6:22–25; Pet. 16).

According to Patent Owner, “Petitioner fails to provide any argument that the Examiner erred by failing to consider the Petitioner’s asserted prior art during prosecution.” *Id.* at 18. Patent Owner states that “Petitioner disingenuously and incorrectly states that ‘none of the asserted references was considered during prosecution’ and that ‘substantially the same art and

arguments have never been presented to or considered by the Office.” *Id.* at 18–19 (quoting Pet. 72).

In its Reply, Petitioner argues that “Sullivan460, which teaches the ‘awake state’ limitation [Patent Owner] relied upon to overcome the prior art, was never considered, cited, or applied by the Examiner during the prosecution of the ’539 [patent], ’994 [patent], or any other related patents,” and that “during prosecution, the Examiner indicated the majority of the claims were allowable because determination of an ‘awake state’ using breathing patterns was not in the prior art.” Pet. Reply 2, 5–6 (citing Ex. 1002, 105, 107–08); *see also id.* at 6 (asserting “Sullivan460 discloses this ‘awake state’ limitation . . . and its disclosures were never presented to the Office” (citing Ex. 1006, 6:30–7:12; Pet. 17–18, 36, 42–43)).

Petitioner further argues “Sullivan995 was never considered during the ’539 [patent] prosecution,” and that the “initialed IDS in the ’994 [patent] prosecution cannot be extended to the ’539 Patent, which differs in claim scope” because “the ’994 Patent does not include the distinguishing ‘awake state’ limitation.” *Id.* at 6–7 (citing *Peloton Interactive, Inc. v. iFit, Inc.*, IPR2021-01597, Paper 10 at 54–55 (PTAB Apr. 22, 2022); *Nuna Baby Essentials, Inc. v. Britax Child Safety, Inc.*, IPR2019-00663, Paper 8 at 7–20 (PTAB Sept. 4, 2019)). Petitioner next argues “Sullivan460 does not share the same disclosure as Sullivan995,” because “Sullivan460 incorporates Sullivan995 by reference and goes on to describe how the disclosed inventions improve on the device disclosed in Sullivan995.” *Id.* at 7 (citing Ex. 1006, 6:22–32). According to Petitioner “there are no material similarities between the specifications of Sullivan460 and Sullivan995, and [Patent Owner] points to none.” *Id.* Petitioner also argues that there is no

overlap between Petitioner's arguments and those made during prosecution of the '539 patent, the '994 patent, or any other related patents. *Id.* at 8. According to Petitioner, "the Office never had an opportunity to assess the patentability of the '539 Patent over any combinations that include Sullivan460." *Id.*

In its Sur-reply, Patent Owner argues "[d]uring prosecution of a child application, the Examiner 'will consider information which has been considered by the Office in the parent application' and 'a listing of the information need not be resubmitted in the continuing application unless the applicant desires the information to be printed on the patent.'" Sur-reply 6 (citing *Google LLC v. Kewazinga Corp.*, IPR2019-00527, Paper 16 at 11 (PTAB Aug. 21, 2021) (citing MPEP § 609.02)). Patent Owner further argues that "Petitioner's 'ancestral application' prosecution arguments fail because the '539 Patent . . . is a child patent of the '994 Patent," and "[t]he Examiner had to consider the materials from the '994 Patent when assessing the '539 Patent." *Id.* at 7. Patent Owner also notes that the same Examiner reviewed the applications for both the '994 patent and '539 patent. *Id.* Patent Owner reiterates its argument that we should find that Sullivan460 was presented to the Office during prosecution of the '994 patent, not because it was disclosed on an IDS, but because Sullivan460 incorporates Sullivan995 by reference and Sullivan995 was disclosed on an IDS during prosecution of the '994 patent. *Id.* at 7–8.

We have considered Patent Owner's arguments and find that Patent Owner has not shown that Sullivan460 was disclosed during prosecution of the '539 patent application or otherwise considered by the Examiner. *See generally* Ex. 1002. Sullivan995 and Rapoport502 were both disclosed on

an IDS filed by the applicant and initialed by the Examiner during prosecution of the '994 patent application. Ex. 2002, 74–75. Sullivan460 was not on the IDS submitted during the '994 patent prosecution. *Id.* Patent Owner does not direct us to any evidence in the record that Sullivan460 was considered by the Examiner during the prosecution of the '994 patent application. Nonetheless, Patent Owner contends that Sullivan460 should “be considered previously presented prior art because it shares the same disclosure as Sullivan995 and, in addition, expressly states that it ‘incorporates Sullivan995 by reference.’” Prelim. Resp. 17. This argument is unavailing because Patent Owner does not point to disclosure in Sullivan995 that corresponds to the disclosure in Sullivan460 of the awake state relied on by Petitioner. *Id.* We also disagree with Patent Owner’s argument that, because Sullivan460 incorporates Sullivan995, Sullivan460 was previously considered during examination. Even assuming Sullivan995 was before the Examiner, it is not Sullivan995 that incorporates by reference Sullivan460; rather, Sullivan460 (which was not submitted to the Examiner) incorporates Sullivan995 by reference.

After considering Patent Owner’s arguments and evidence, we find, in connection with *Becton Dickinson* factor (a), that Sullivan460 was not presented to the Office during the prosecution of the '994 patent application nor was it presented to the Office during prosecution of the '549 patent application. In connection with *Becton Dickinson* factor (d), we find that there is no overlap between Petitioner’s arguments here and during prosecution of the '549 patent. In fact, the prosecution histories of the '549 patent and the '994 patent are both silent with respect to the combinations of references asserted by Petitioner because there are no

rejections based on the combination of references asserted here. For the reasons discussed above, we determine that that the first prong of the *Advanced Bionics* framework is not satisfied. Because the first prong of the *Advanced Bionics* framework is not satisfied, we need not reach the second prong of the *Advanced Bionics* framework and decline to exercise our discretion to deny institution under § 325(d).

C. Legal Standards

A claim is anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim. *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010). “A single prior art reference may anticipate without disclosing a feature of the claimed invention if such feature is necessarily present, or inherent, in that reference.” *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 958 (Fed. Cir. 2014) (citing *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003)).

A patent claim is unpatentable for obviousness if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). In *Graham v. John Deere Co.*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of nonobviousness such as “commercial success, long felt but unsolved needs, failure of others,

etc.” *Id.* at 17–18; *KSR*, 550 U.S. at 407. At this stage of the proceeding there is no dispute as to the level of ordinary skill in the art and neither party addresses evidence directed to secondary considerations. *See generally* Pet.; Prelim. Resp.

D. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). Petitioner contends that a person of ordinary skill in the art “in 2003 would have had at least a bachelor’s degree in mechanical engineering, biomedical engineering, or a similar technical field, with at least two years of relevant product design experience” and “[a]dditional experience could substitute for less education, and additional education could likewise substitute for less experience.” Pet. 19 (citing Ex. 1003 ¶ 77). Petitioner further states that the “Petition does not turn on this precise definition, and the challenged claims would be unpatentable from the perspective of any reasonable person of ordinary skill in the art at the relevant time.” *Id.* (citing Ex. 1003 ¶ 78). Patent Owner, at this stage of the proceeding, does not dispute Petitioner’s definition of the person of ordinary skill in the art. Prelim. Resp. 9.

We find, on the current record, that the ’539 patent and the cited prior art references reflect the appropriate level of skill at the time of the claimed invention and that the level of appropriate skill reflected in these references and in the ’539 patent is consistent with the definition of a person of

ordinary skill in the art proposed by Petitioner. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (“the prior art itself [may] reflect[] an appropriate level” as evidence of the ordinary level of skill in the art) (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)). Accordingly, we adopt Petitioner’s proposed level of ordinary skill in the art for purposes of this Decision.

E. Claim Construction

We apply the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). Under that standard, claim terms “are generally given their ordinary and customary meaning” as would have been understood by a person of ordinary skill in the art at the time of the invention. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317.

Petitioner propose no express construction for any claim term, at least with regard to the alleged obviousness grounds of unpatentability. *See* Pet. 20. In regard to the alleged anticipation grounds, Petitioner contends “the patient is in an awake state when there is an absence of obstructions or other breathing patterns indicative of sleep,” and asserts this is an “implied construction of ‘an awake state’ based on [Patent Owner’s] infringement

allegations” in district court. *Id.* at 68, 70. Patent Owner proposes no express construction of any claim term and states “no claim terms are in controversy.” Prelim. Resp. 10.

In light of our determinations below, we find that an express construction of any claim term is not necessary for purposes of rendering this Decision. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed ‘to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

F. Alleged Obviousness over Sullivan995 and Sullivan460

Petitioner contends that claims 1, 2, 5–11, 13, and 15–30 would have been obvious over Sullivan995 and Sullivan460. Pet. 20–50. Petitioner’s contentions are supported by the declaration testimony of Dr. Khosrow Behbehani. Ex. 1003 ¶¶ 81–192. Below we briefly summarize Sullivan995 and Sullivan460 and consider whether the information presented by Petitioner is sufficient to support institution of *inter partes* review.

1. Summary of Sullivan995

Sullivan995 is titled “Device and Method for Monitoring Breathing During Sleep, Control of CPAP Treatment, and Preventing of Apnea.” Ex. 1005, code (54). Sullivan995 is directed “to the diagnosis and treatment of partial or complete upper airway occlusion, a condition where the upper airway collapses, particularly under the reduced pressure generated by inhalation.” *Id.* at 1:14–18.

Figure 1A of Sullivan995 is reproduced below.

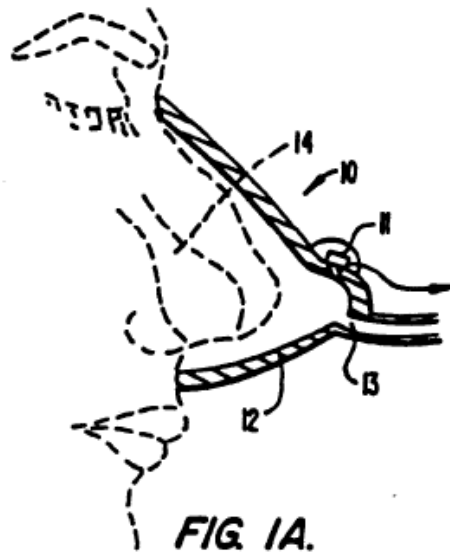


Figure 1A depicts snoring detection device 10. *Id.* at 8:47. Snoring detection device 10 includes microphone 11 that is “in sound communication with the container 12 of a nose mask.” *Id.* at 8:47–49. Sullivan995 explains that “[a]ir, being inhaled by the patient, enters the nasal passageways 14 through the opening 13 in the nose mask 12 and is exhaled in the reverse direction” and this arrangement focuses and concentrates snoring and breathing sounds. *Id.* at 8:49–52, 8:57–59.

Sullivan995 describes using detection device 10 in a diagnostic device or a feedback control. Ex. 1005, 8:61–62. For instance, an electronic processor/recorder may be connected to microphone 11 to record signals “either on a time basis or after preprogrammed processing so as to record for example tables of indexes such as the number of apneic episodes, their duration, etc.” and “[t]he recorded data can then be reviewed by the physician for diagnosis.” *Id.* at 8:62–9:2.

Figure 3 of Sullivan995 is reproduced below.

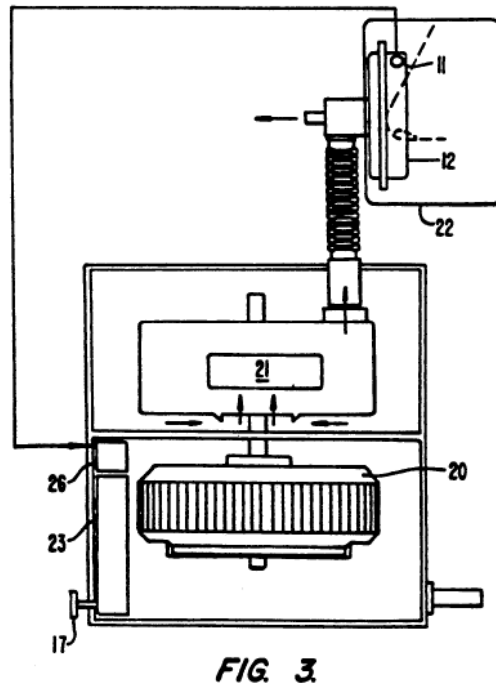


Figure 3 of Sullivan995 shows a CPAP apparatus. Ex. 1005, 9:57–58. The CPAP apparatus shown in Figure 30 includes motor 20 that drives blower 21. *Id.* at 9:58–59. Sullivan995 explains that “[t]he speed of the motor 20 is controlled by an electronic speed control unit 23.” *Id.* at 9:59–60. The CPAP apparatus further includes snoring detection means 22 that uses microphone 11 to detect sounds. *Id.* at 9:64–66. Sullivan995 states that “snoring detection means 22 is conveniently in the form of the previously described device 10” and that “[i]n its most general form, the snoring detection means 22 is a pressure detection means and microphone 11 is a differential pressure sensor.” *Id.* at 9:66–3. Sullivan995 explains that:

Electrical impulses are fed from said microphone 11 to an amplifier/filter/processor unit 26 which generates an electrical signal when snoring sounds occur. The motor speed control means is electrically connected to the snoring detection device 22 and increases the speed of the electric motor 20 by an

analogue means in response to the electrical signal generated by the snoring detection device. Accordingly, the output pressure of the CPAP unit increases in response to detection of snoring.

Id. at 10:3–12.

Sullivan995 describes that a patient connects themselves to the CPAP unit and goes to sleep. Ex. 1005, 10:47–48. The CPAP unit operates at an initial pressure but, after going to sleep, the patient's body relaxes and the patient's airway will become unstable and the patient will snore. *Id.* at 10:48–54. Detection apparatus 22 responds to a snore or snore pattern and, via processor 26, increases motor speed so that the CPAP unit's pressure increases. *Id.* at 10:55–58.

Figure 12 of Sullivan995 is reproduced below.

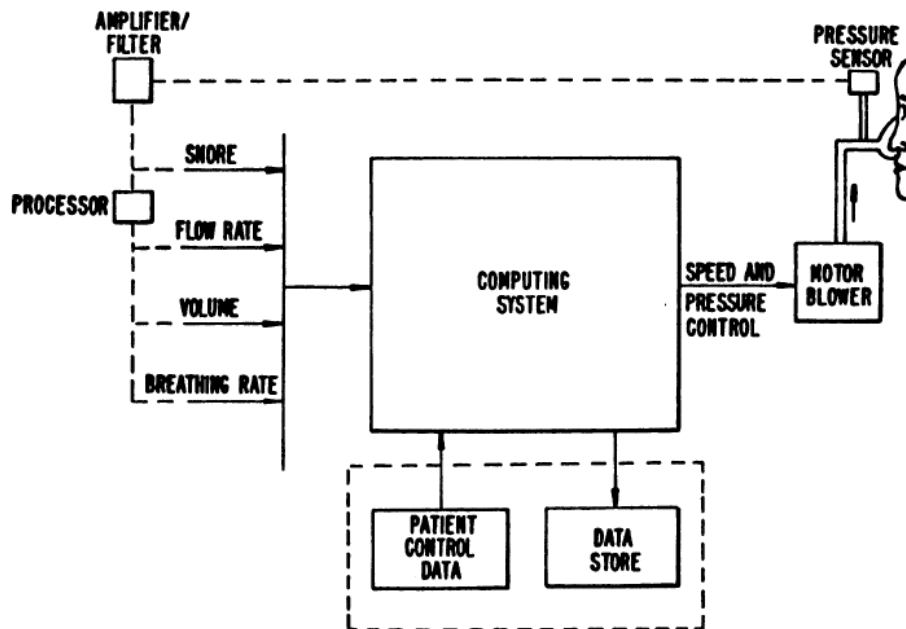


FIG. 12.

Figure 12 shows schematically the circuitry of Sullivan995's feedback system. Ex. 1005, 8:36–39, 17:3–4. Sullivan995 states as follows:

A pressure detection apparatus is provided either integral with or attached to the CPAP mask worn by the patient. The electrical

signals from the pressure transducer are amplified and filtered to provide pressure waves of the desired frequencies indicative of snoring and breathing. The pressure wave indicative of breathing is further processed to generate signals indicative of flow rate, volume and breathing rate. Any or all signals are fed to a computing system which analyses the signals for deviation from predetermined values or patterns. The computing system may itself calculate control values of patterns for each patient based on moving average values or such values or patterns will be pre-programmed into the computing system.

Id. at 17:4–18.

2. *Sullivan460*

Sullivan460 is titled “Apparatus and Method for the Treatment of an Upper Airway Flow Limitation.” Ex. 1006, code (54). Sullivan460 is directed to “an apparatus and method for the treatment of an upper airway flow limitation in a patient” and particularly “an apparatus and method of treating hypertension caused by pre-eclampsia.” *Id.* at 1:5–8. Sullivan460 describes an embodiment in which a “treatment means is a device which applies Continuous Positive Airway Pressure (CPAP), more preferably nasal-Continuous Positive Airway Pressure (nCPAP), to the airway of the patient.” *Id.* at 6:17–20. Sullivan460 also describes an embodiment in which “the flow rate measurement means and the treatment means may be constructed together as part of one apparatus, such as the AutoSet product from ResMed described in [Sullivan 995].” *Id.* at 6:22–24.

Figure 2 of Sullivan460 is reproduced below.

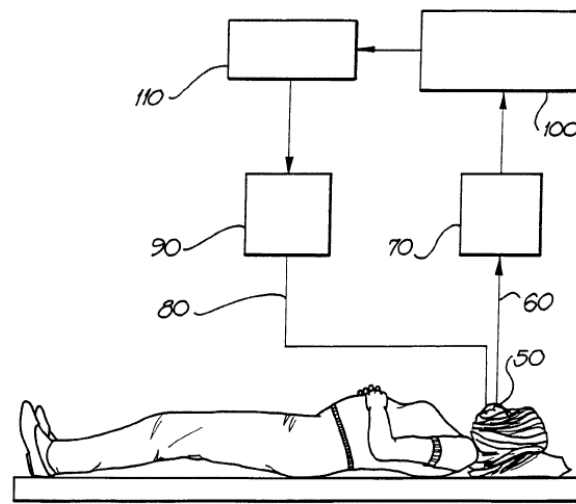


FIG. 2

Sullivan460's "Figure 2 shows a patient 30 being treated for hypertension caused by pre-eclampsia." Ex. 1006, 10:7–8. In Figure 2, patient 30 is lying on bed 40 and wears mask 50 over her nose 50. *Id.* at 10:8–9. Mask 50 is connected via 80 to nCPAP apparatus 90. *Id.* at 10:9–10. Sullivan460 states that "flow rate measurement means 70 detects the rate at which the patient breathes in air, and generates a signal which is sent to a central controller 100." *Id.* at 10:10–12. Sullivan460 explains that "[w]hen the flow rate measurement means 70 detects the interruptions to inspiratory flow 10, the controller 100 activates a switch 110 which activates the nCPAP apparatus 90 to supply air to the patient 30 at a pressure which ameliorates or eliminates the upper airway flow limitation for that patient." *Id.* at 10:12–16.

Sullivan460 explains as follows:

[T]he treatment means may operate with two modes of delivery, a first mode for use when the patient is awake, and a second mode

for use when the patient is asleep. In the first mode of air delivery, the treatment means provides a minimally intrusive air and pressure delivery to the patient, and hence is more comfortable. In the second mode of air delivery, the treatment means provides a relatively greater air and pressure delivery to the patient than in the first mode, which is sufficient to treat an air flow limitation.

Ex. 1006, 6:30–7:2. Sullivan460 describes an embodiment in which “the treatment means may additionally include a sleep sensor which senses whether or not the patient is asleep, and may also include a switching means which responds to the sleep sensor and automatically switches the treatment means between the two modes of air delivery.” *Id.* at 7:3–7. Sullivan460 also describes an embodiment in which a “detection means is adapted to detect the occurrence of at least two or more interruption cycles in the upper inspiratory flow rate and the treatment means treats the airway limitation on detection of said at least two interruption cycles.” *Id.* at 3:20–23.

3. *Alleged Obviousness of Independent Claim 24 over Sullivan995 and Sullivan460*

Petitioner provides a limitation-by-limitation analysis of independent claim 24, mapping the claim limitations to the prior art. Pet. 24–36. Petitioner also provides contentions concerning motivation to combine and reasonable expectation of success. *Id.* at 20–24. Petitioner’s contentions are supported by Dr. Behbehani. Ex. 1003 ¶¶ 81–125.

Patent Owner argues that we should “incorporate the Examiners’ findings and analysis during prosecution of the ’539 Patent and the ’994 Patent” to find the Challenged Claims not obvious (Prelim. Resp. 24–25), that “the asserted prior art fails to disclose the specific limitations of the ’539 Patent directed to the claimed ‘awake state’” and detection of the transition between the ‘awake state’ and the ‘sleep state’” (Prelim. Resp. 25

(referring back to “Section IV.C” of the Preliminary Response)), that Sullivan460 teaches away from the ’539 patent (*id.* at 26–29), and that Petitioner cannot establish motivation to combine or reasonable expectation of success because the Petition does not establish that the prior art teaches all claim limitations (*id.* at 29–33). For the reasons that follow, we determine that Petitioner provides a sufficient showing with respect to the alleged obviousness of claim 24 over Sullivan995 and Sullivan460 to support institution. We analyze the parties’ respective arguments with regard to claim 24 below.

a. Petitioner’s Contentions

A positive airway pressure system for treatment of a sleeping disorder in a patient, comprising:

Petitioner contends that, to the extent the preamble is limiting, Sullivan995 discloses a CPAP system that corresponds to a positive airway pressure system that one of ordinary skill in the art would have understood that “CPAP delivers ‘positive’ airway pressure relative to atmospheric pressure.” Pet. 24 (citing Ex. 1003 ¶ 95; Ex. 1005, Abstract, 1:33–36, 2:15–19, 9:57–58, Fig. 3). Petitioner further contends that Sullivan995’s CPAP system “includes a nose mask 12 or nasal prongs that are ‘fluidly sealable to the nasal air passages of a patient’ and are ‘for delivery of air to the patient’s nasal passages’” and thereby assists in treating a sleeping disorder in a patient by providing air pressure at a level “to ‘prevent the onset of apnea.’” *Id.* at 24–25 (citing Ex. 1003 ¶97; Ex. 1005, 1:20–48, 5:12–34, 10:31–35, 10:67–11:4, 11:15–20, 11:23–43, claim 6, Fig. 3).

a generator supplying airflow and applying a pressure to an airway of a patient;

Petitioner contends that “Sullivan995’s CPAP system includes a motor 20 with a variable speed that drives a blower 21,” corresponding to the recited generator supplying airflow. *Id.* at 26 (citing Ex. 1003 ¶ 98; Ex. 1005, 9:57–64). Petitioner notes in this regard that Sullivan995 states “an increase in motor speed also increases the blower speed which in turn increases the output air pressure of the blower 21.” *Id.* (quoting Ex. 1005, 9:60–64).

a sensor measuring data corresponding to patient’s breathing patterns from data indicate of the airflow supplied to the patient using at least one of a flow sensor or pressure sensor; and

Petitioner contends microphone 11 of Sullivan995 is a differential pressure sensor corresponding to the recited flow sensor. *Id.* at 26 (citing Ex. 1003 ¶ 99; Ex. 1005, 9:64–66, Fig. 3). Petitioner further contends that microphone 11 “consists of a pressure transducer, which, in addition to detecting snoring sounds, can detect other respiratory parameters such as the rate of breathing, inhaled air flow or inhaled air flow rate.” *Id.* (emphasis omitted) (quoting Ex. 1005, 3:21–30). According to Petitioner, “microphone 11 (*sensor*) performs a ‘form of measurement’ by ‘detecting snoring sounds’ and ‘other respiratory parameters such as the rate of breathing, inhaled air flow or inhaled air flow rate’ (*measuring data corresponding to patient’s breathing patterns*).” *Id.* at 27 (citing Ex. 1003 ¶ 104; Ex. 1005, 3:21–33, 11:5–20, 15:56–64); *see also id.* at 27–28 (contending that Sullivan995’s Figures 2A and 9 disclose data indicative of the patient’s breathing patterns) (citing, e.g., Ex. 1005, 13:10–21, 18:27–31,

18:50–53). Petitioner also contends that Sullivan995 uses at least one of a flow sensor or pressure sensor because microphone 11 is both a flow sensor and a pressure sensor. *Id.* at 29 (emphasis omitted) (citing Ex. 1003 ¶ 111; Ex. 1005, Fig. 7).

a hardware processor analyzing the breathing patterns to determine whether breathing patterns indicate an asleep state or an awake state have occurred.

Petitioner contends that Sullivan995’s “combination of an amplifier/filter/processor unit 26 with a speed control unit 23” correspond to the recited hardware processor. *Id.* at 30 (footnotes and emphasis omitted) (citing Ex. 1005, Figs. 3, 12). According to Petitioner, “microphone 11 (flow sensor) provides its measured data to processor unit 26,” and processor 26 “generates a control signal indicative of the recognition of a snoring pattern equivalent to a predetermined pattern.” *Id.* at 30–31 (citing Ex. 1005, 10:3–6, 10:37–66, 11:55–62). Petitioner contends that “[i]n generating this control signal, the processor unit 26 (included in the hardware processor) therefore analyzes data [from the sensor] to determine the patient’s breathing patterns which are the snoring patterns or predetermined patterns in Sullivan995.” *Id.* at 33 (further stating that “the computing system (including processing unit 26 and speed controller 23) ‘analyses and records signals from the pressure sensor,’ and analyzes ‘the sound and breathing patterns’ to record ‘indexes such as the number of apneic episodes, the number of hypopneas, their duration, etc.’” (citing Ex. 1005, 12:67–13:8)).

According to Petitioner, “Sullivan995 describes detecting ‘a snore, or snoring pattern or abnormal breathing pattern’ after the patient has gone to sleep, and then increasing the CPAP pressure in response.” *Id.* (citing

Ex. 1003 ¶¶ 112, 117; Ex. 1005, 16:17–22); *see also id.* at 34–35 (contending that Figure 2A of Sullivan995 discloses data indicative of a patient’s breathing patterns) (citing, e.g., Ex. 1003 ¶¶ 120–121; Ex. 1005, 9:16–32). Petitioner concedes that “Sullivan995 does not explicitly disclose that the hardware processor determines whether the breathing patterns indicate an awake state,” which Petitioner contends would have been obvious in view of Sullivan460. *Id.* at 35.

In regard to Sullivan460, Petitioner explains as follows:

Sullivan460 discloses determining *whether breathing patterns indicate an awake state* by describing embodiments in which “a sleep sensor [] senses whether or not the patient is asleep” by determining “when there is a reduced average airflow in the patient’s upper airway According to Sullivan460, “a switching means responds to the sleep sensor and automatically switches the treatment means between [] two modes of air delivery,” where “a first mode [is] for use when the patient is awake, and a second mode [is] for use when the patient is asleep,” where the pressure for the second mode is higher than the pressure for the first mode.

Id. at 36 (first and third alterations in original) (citing Ex. 1003 ¶ 124; Ex. 1006, 6:30–7:12, 7:10–12, 7:17–19, claims 22–28, 43–46).

In support of the combination of the teachings of Sullivan995 and Sullivan460, Petitioner states that “Sullivan460 incorporates Sullivan995 by reference and refers to Sullivan995 as describing ‘flow rate measurement means and [a] treatment means [as being] constructed together as part of one apparatus [with Sullivan995].’” *Id.* at 35 (alterations in original) (citing Ex. 1003 ¶ 123; Ex. 1006, 6:22–29); *see also id.* at 20–24 (discussing motivations supporting the asserted combination of teachings from Sullivan995 and Sullivan460, as well as why a person of ordinary skill in the art would have had a reasonable expectation of success). According to

Petitioner, the asserted combination advantageously “would apply a low pressure upon wake-up, adding to patient comfort and decreasing the likelihood the patient will remove the mask due to uncomfortably high pressure,” as suggested by Sullivan995, which explains “that pressure is reduced when an extended period of snore-free breathing is detected (e.g., which would include an awake period).” *Id.* at 21–22 (citing Ex. 1005, 10:13–46, 14:45–64). Additionally, Petitioner contends that a person of ordinary skill in the art “would have had a reasonable expectation of success in performing this modification because Sullivan460 already describes Sullivan995 as being used to sense flow limitations, and Sullivan460 further explains that flow data may be used to determine an awake/sleep state.” *Id.* at 23 (citing Ex. 1003 ¶ 91).

b. Patent Owner’s Arguments in Opposition

We next consider Patent Owner’s arguments in opposition to Petitioner’s contentions. First, Patent Owner argues that “the Board should incorporate the Examiners’ findings and analysis during prosecution of the ’539 Patent and the ’994 Patents to support a finding that the challenged claims are also not rendered obvious under Petitioner’s grounds for the reasons described above.” Prelim. Resp. 24. Patent Owner does not specifically explain what “Examiners’ findings and analysis” it is referring to and instead references its arguments based on its contentions regarding 35 U.S.C. § 325(d), which we addressed above. Accordingly, we find no plausible support to deny institution based on “the Examiners’ findings,” as Patent Owner suggests.

Second, Patent Owner argues that “the asserted prior art fails to disclose the specific limitations of the ’539 Patent directed to the claimed

‘awake state’” and detection of the transition between the ‘awake state’ and the ‘sleep state.’”⁸ *Id.* at 25. In support of its argument, Patent Owner refers back to “Section IV.C” of the Preliminary Response without further explanation. *Id.* Section IV.C. of the Preliminary Response corresponds to the heading “Petitioner’s Anticipation Challenges Must Fail Because Neither Sullivan995 nor Rapoport502 Teach Systems Indicating Transitions Between Sleep and Awake State Breathing Patterns.” *Id.* at 20. Rapoport502 is not relied on by Petitioner under this ground of unpatentability. Moreover, Petitioner relies on Sullivan460 as teaching, in combination with Sullivan995, the “hardware processor analyzing the breathing patterns to determine whether breathing patterns indicate an asleep state or an awake state have occurred,” as recited by claim 24. *See* Pet. 35 (stating that “[a]lthough Sullivan995 does not explicitly disclose that the *hardware processor determines whether the breathing patterns indicate an awake state*, this limitation would have been obvious from Sullivan995 in view of Sullivan460”).

Arguments Patent Owner advances to show that the challenged claims are not anticipated by Sullivan995 fail to address Petitioner’s contention that claim 24 would have been obvious over the combination of Sullivan995 and Sullivan460. In a footnote, Patent Owner suggests, without further explanation, that “Sullivan460 shares the same disclosure deficiencies as Sullivan995.” Prelim. Resp. 25 n.9. Given that the disclosures of Sullivan460 are substantively different from Sullivan995, and that Petitioner

⁸ We note that in a heading Patent Owner suggests that the asserted art does not teach the claimed “troubled wakefulness state.” Prelim. Resp. 24. No claim of the ’539 patent recites a “troubled wakefulness state.”

expressly relies on the additional teachings of Sullivan460 as the basis for modifying Sullivan995, we disagree with Patent Owner’s cursory argument.

Third, Patent Owner argues that Sullivan460 teaches away from the ’539 patent “because it does not teach detection of sleep apnea breathing patterns.” Prelim. Resp. 26–29. Patent Owner asserts that Sullivan460 “teaches detection of an interruption cycle, which is ‘characterized by a decrease in upper airway inspiratory flow rate followed by an increase in the upper inspiratory airflow rate.’” *Id.* at 27 (quoting Ex. 1006, 3). Patent Owner points to a statement in Sullivan460 that “[t]he type of interruption cycle detected may not be observed in a breathing pattern of a patient suffering from another form of airway limitation such as snoring or sleep apnea.” *Id.* (quoting Ex. 1006, 4). And, Patent Owner argues that Sullivan460 was “intended not to treat and detect apneas but rather to detect airway patterns resulting from substantial blood pressure elevations exhibited by patients with pre-eclampsia.” *Id.* (citing Ex. 1006, 6). Patent Owner argues that, “[t]hus, a person of ordinary skill in the art would not look to Sullivan460 to teach the claimed limitations of the ’539 Patent, because the ’539 Patent system necessarily requires detection of breathing patterns corresponding to apneas and hypopneas Thus, Sullivan460 teaches away from the ’539 Patent.” *Id.* at 28–29 (citing Ex. 1001, claims 1, 10, 17).

“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (quoting

Ricoh Co. v. Quanta Comput. Inc., 550 F.3d 1325, 1332 (Fed. Cir. 2008)). Indeed, a reference must be considered for all it discloses, both disclosure that teaches away from the invention at issue as well as disclosure that points toward and teach the invention. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 296 (Fed. Cir. 1985).

Patent Owner fails to identify any evidence that would discourage or otherwise lead one of ordinary skill in the art away from the combination proposed by Petitioner. First, claim 24 recites “[a] positive airway pressure system *for treatment of a sleeping disorder*,” and then recites components of “the positive airway pressure system.” Ex. 1001, 11:36–12:7 (emphasis added). Thus, claim 24 is directed to assisting in the treatment of a “sleeping disorder,” not specifically apneas and hypopneas. Second, Sullivan460 explicitly discloses that its “flow rate measurement means and . . . treatment means may be constructed together as part of one apparatus, such as the AutoSet product from ResMed described in [Sullivan995], the contents of which are incorporated herein by reference.” Ex. 1006, 6:22–25. In other words, as Petitioner contends, “Sullivan460 expressly states that Sullivan995 may be modified to include features of Sullivan460.” Pet. 22. Accordingly, on the current record at this stage of the proceedings, we do not find that Sullivan460 teaches away from the claimed invention.

Fourth, Patent Owner argues that Petitioner cannot establish motivation to combine “because it failed to meet its burden of proving that the asserted art disclosed all the claim limitations of, at the very least, the independent claims.” Prelim. Resp. 29–33. As discussed above, based on the current record, Petitioner sufficiently establishes that the asserted combination of Sullivan995 and Sullivan460 teaches every limitation of

claim 24, and identifies specific teachings of Sullivan995 and Sullivan460 corresponding to each limitation, along with several reasons with rational underpinning as to why one of ordinary skill in the art would have been motivated to modify Sullivan995 as Petitioner proposes. *See* Pet. 20–36. Accordingly, we disagree with Patent Owner’s assertion that Petitioner improperly relied on “conclusory statements and unspecific expert testimony to support an obviousness rejection when the proposed combinations of references . . . fail to teach required claim limitations.” *See* Prelim. Resp. 30.

On the preliminary record before us and based on our review of the evidence and arguments cited by Petitioner, and after considering Patent Owner’s arguments, we find Petitioner sufficiently shows that the asserted combination of Sullivan995 and Sullivan 460 teaches every limitation of claim 24 and that one of ordinary skill in the art would have had sufficient reason to combine Sullivan995 and Sullivan460 and would have had a reasonable expectation of success in doing so.

4. *Alleged Obviousness of Claims 1, 2, 5–11, 13, 15–23, and 25–30 over Sullivan995 and Sullivan460*

Petitioner asserts that claims 1, 2, 5–11, 13, 15–23, and 25–30 would have been obvious over Sullivan995 and Sullivan460 and provides a detailed analysis of each of these claims with argument and evidence in support thereof. Pet. 36–50. Patent Owner does not raise any arguments directed specifically to claims 1, 2, 5–11, 13, 15–23, and 25–30 aside from the arguments we addressed in our discussion of claim 24. *See generally* Prelim. Resp. For the reasons explained above in our analysis of claim 24 and based on our review and consideration of Petitioner’s arguments and evidence directed to claims 1, 2, 5–11, 13, 15–23, and 25–30, on the

preliminary record before us, we find that Petitioner has shown sufficiently that the asserted combination of Sullivan995 and Sullivan 460 teaches every limitation of claims 1, 2, 5–11, 13, 15–23, and 25–30, and that one of ordinary skill in the art would have had sufficient reason to combine Sullivan995 and Sullivan460 and would have had a reasonable expectation of success in doing so.

5. *Determination of a Reasonable Likelihood of Prevailing*

“Once all relevant facts are found, the ultimate legal determination [of obviousness] involves the weighing of the fact findings to conclude whether the claimed combination would have been obvious to an ordinary artisan.” *Arctic Cat*, 876 F.3d at 1361. On balance, considering the record presently before us, Petitioner has established a reasonable likelihood that it would prevail in showing that the combination of Sullivan995 and Sullivan460 would have rendered the subject matter of claims 1, 2, 5–11, 13, and 15–30 of the ’549 patent obvious to one of ordinary skill in the art at the time of the invention.

G. *Alleged Obviousness over Rapoport502 and Sullivan460*

Petitioner contends that claims 1, 2, 5–11, 13, and 15–30 would have been obvious over Rapoport502 and Sullivan460. Pet. 50–68. Petitioner’s contentions are supported by the declaration testimony of Dr. Khosrow Behbehani. Ex. 1003 ¶¶ 193–248.

Because we have determined above that, at this stage of the proceeding and on the present record, the information presented in the Petition and Preliminary Response shows that there is a reasonable likelihood that Petitioner will prevail with respect to at least one claim based on alleged obviousness over Sullivan995 and Sullivan460, we need not

address, in this Decision, Petitioner’s additional challenges based on alleged obviousness over Rapoport502 and Sullivan460. *See* 35 U.S.C. § 314(a).

H. Alleged Anticipation by Sullivan995 and by Rapoport502

Petitioner contends that claims 1, 2, 5–11, 13, and 15–30 are anticipated by Sullivan995 and by Rapoport502. Pet. 68–71. Petitioner premises its contentions on the notion that it is applying a claim construction of “an awake state” that Patent Owner “implied” in district court litigation, but Petitioner neither expressly construes the term nor identifies an express construction advanced by Patent Owner in district court. *Id.* Petitioner provides no limitation-by-limitation analysis of any challenged claim, and instead focuses much of its short discussion on allegations made by Patent Owner in district court. *Id.* According to Petitioner, Sullivan995 and Rapoport502 both disclose “the absence of breathing patterns indicative of sleep, which is indicative of *an awake state* under PO’s implied construction,” rendering claims 1, 2, 5–11, 13, and 15–30 anticipated by Sullivan995 and by Rapoport502. *Id.*

Because we have determined above that, at this stage of the proceeding and on the present record, the information presented in the Petition and Preliminary Response shows that there is a reasonable likelihood that Petitioner will prevail with respect to at least one claim based on alleged obviousness over Sullivan995 and Sullivan460, we need not further address, in this Decision, Petitioner’s additional challenges based on alleged anticipation by Sullivan995 and by Rapoport502. *See* 35 U.S.C. § 314(a).

IV. CONCLUSION

Based on the evidence before us, we determine Petitioner demonstrates a reasonable likelihood of prevailing in its assertions that the Challenged Claims of the '539 patent are unpatentable. Accordingly, *inter partes* review shall proceed in this case on all of the grounds raised in the Petition. See *SAS Inst.*, 138 S. Ct. at 1359–60 (holding that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (stating the decision whether to institute *inter partes* review requires “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

Our determination in this Decision is not a final determination on either the patentability of any challenged claims or the construction of any claim term and, thus, leaves undecided fact issues necessary to determine whether sufficient evidence supports Petitioner’s contentions by a preponderance of the evidence in the final written decision. See *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (noting that “there is a significant difference between a petitioner’s burden to establish a ‘reasonable likelihood of success’ at institution, and actually proving invalidity by a preponderance of the evidence at trial”) (quoting 35 U.S.C. § 314(a) and comparing *id.* § 316(e)).

V. ORDER

Upon consideration of the record before us, it is:

ORDERED that, pursuant to 35 U.S.C. § 314, an *inter partes* review of claims 1, 2, 5–11, 13, and 15–30 of U.S. Patent No. 9,427,539 B2 is instituted with respect to all grounds set forth in the Petition; and

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FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 9,427,539 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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